

We claim:

1. A dripping nozzle device comprising dripping nozzles for allowing a feedstock liquid that includes uranyl nitrate to fall in drops to an aqueous ammonium solution stored in an aqueous ammonia solution reservoir; and a vibrator for vibrating the nozzles simultaneously.
2. The dripping nozzle device according to claim 1, wherein each nozzle is provided with a flow regulator for controlling a dripping rate of the feedstock liquid and a volume of each of the drops.
3. A dripping nozzle device comprising a dripping nozzle or dripping nozzles for allowing a feedstock liquid that includes uranyl nitrate to fall in drops; and a feedstock liquid container capable of containing a predetermined volume of the feedstock liquid supplied from a feedstock liquid reservoir in which the feedstock liquid is stored, the container having an inner volume larger than the inner volume of the dripping nozzle or the inner volume of each of the dripping nozzles, wherein the container supplies the contained feedstock liquid to the dripping nozzle or all the dripping nozzles by the force of gravity.
4. The dripping nozzle device according to claim 3, wherein the feedstock liquid container has a horizontal section, the area of which is larger than the area of the horizontal section of the dripping nozzle or that of each of the dripping nozzles.
5. The dripping nozzle device according to claim 3 or 4,

wherein the feedstock liquid container is directly connected to the dripping nozzle or all the dripping nozzles.

6. The dripping nozzle device according to any one of claims 3-5, wherein the end of the dripping nozzle, or the respective ends of all the dripping nozzles, from which the feedstock liquid including uranyl nitrate is dripped, are provided with an edge thinned in the direction of the falling of the drops.

7. The dripping nozzle device according to any one of claims 1-6, further comprising a feedstock liquid supplier for supplying the feedstock liquid stored in the feedstock liquid reservoir to the nozzle or nozzles substantially at a constant rate and without pulsation.

8. A device for recovering a feedstock liquid, comprising a remaining feedstock liquid collector, placed between a dripping nozzle or dripping nozzles of a dripping nozzle device that comprises the dripping nozzle or dripping nozzles for dripping the feedstock liquid including uranyl nitrate to an aqueous ammonia solution wherein the feedstock liquid is transferred from a feedstock liquid reservoir through a feedstock liquid transferring passage to the dripping nozzle or nozzles and an aqueous ammonia solution reservoir in which an aqueous ammonia solution is stored, said remaining feedstock liquid collector for receiving a remainder of the feedstock liquid remaining in the feedstock liquid transferring passage when the dripping of the feedstock liquid from the dripping nozzle or nozzles to the aqueous ammonia solution is stopped; and a feedstock liquid remainder transferring passage for

transferring the remainder to the feedstock liquid reservoir.

9. The device for recovering a feedstock liquid according to claim 8, wherein the dripping nozzle device is a device recited in any one of claims 1-7.

10. A device for supplying a feedstock liquid comprising a light irradiator for irradiating with light drops of a feedstock liquid that includes uranyl nitrate, the drops being dripped from a dripping nozzle device wherein the dripping nozzle device comprises dripping nozzles and the drops are dripped from each of the dripping nozzles; and flow regulators, each of which controls an amount of the feedstock liquid to be supplied to each dripping nozzle from a feedstock liquid reservoir in which the feedstock liquid is stored, depending on conditions of the falling of the drops irradiated with the light.

11. The device for supplying a feedstock liquid according to claim 10, wherein the dripping nozzle device is a device recited in any one of claims 1-7.

12. The device for supplying a feedstock liquid according to claim 10 or 11, wherein the light irradiator is a strobe light irradiator for emitting a light that flashes on and off periodically.

13. A device for supplying a feedstock liquid according to any one of claims 10-12, further comprising photosensors for sensing the light emitted by the light irradiator, and a controller for controlling the flow regulators upon an input

of a sensing signal outputted by the photosensors so that the nozzles drip at the same dripping rate, the drops dripped from each nozzle have the same volume, and a drop dripped from one of the nozzles has the same volume as a drop dripped from any other one of the nozzles.

14. A device for solidifying the surfaces of drops, comprising an ammonia gas sprayer for spraying ammonia gas to a path or each of paths along which drops of the feedstock liquid that includes uranyl nitrate fall to an aqueous ammonia solution stored in an aqueous ammonia solution reservoir, the drops being dripped from a dripping nozzle device wherein the dripping nozzle device comprises one or more nozzles and the drops are dripped from the nozzle or the nozzles.

15. The device for solidifying the surfaces of drops according to claim 14, wherein the dripping nozzle device is a device recited in any one of claims 1-7.

16. A device for solidifying the surfaces of drops according to claim 14 or 15, further comprising an ammonia gas discharger for discharging the ammonia gas sprayed by the ammonia gas sprayer, the ammonia gas discharger being placed at a location opposite the ammonia gas sprayer with the path or the paths of the drops being in between.

17. The device for solidifying the surfaces of drops according to any one of claims 14-16, wherein the ammonia gas sprayer comprises ammonia gas spraying nozzles wherein the flow rates of the ammonia gas sprayed from the respective nozzles are

adjustable.

18. A device for solidifying the surfaces of drops according to any one of claims 14-17, the aqueous ammonia solution reservoir further comprising an aqueous ammonia solution discharger for discharging the aqueous ammonia solution stored therein to keep constant the distance between the end(s) of the dripping nozzle(s) and the surface of the aqueous ammonia solution.

19. The device for solidifying the surfaces of drops according to any one of claims 14-18, wherein the distance between the end(s) of the dripping nozzle(s) and the ends of the ammonia gas spraying nozzles is from 10 mm to 40 mm, the shortest distance between the path or paths along which the drops dripped from the end(s) of the dripping nozzle(s) fall and the ends of the ammonia gas spraying nozzles is from 3 mm to 15 mm, and the flowrate of the ammonia gas sprayed from the ammonia gas spraying nozzles is from 3 L/min to 25 L/min.

20. A device for circulating an aqueous ammonia solution, comprising an aqueous ammonia solution circulating path through which an aqueous ammonia solution is circulated and returned to an aqueous ammonia solution reservoir in which the aqueous ammonia solution is stored, from a lower part of the reservoir, so that ammonium diuranate particles produced by a reaction between uranyl nitrate and ammonia flow upward in the aqueous ammonia solution, wherein the uranyl nitrate is included in drops that are formed by dripping of a feedstock liquid including uranyl nitrate from a dripping nozzle or dripping nozzles of

a dripping nozzle device, and the ammonia is of the aqueous ammonia solution stored in the aqueous ammonia solution reservoir, which solution receives the drops falling from the dripping nozzle or nozzles.

21. The device for circulating an aqueous ammonia solution according to claim 20, wherein the dripping nozzle device is a device recited in any one of claims 1-7.

22. The device for circulating an aqueous ammonia solution according to claim 20 or 21, wherein the aqueous ammonia solution reservoir has a side hole in a sidewall thereof and a bottom hole in the lower part thereof; and the aqueous ammonia solution circulating path comprises a pipe for circulating the aqueous ammonia solution connected to the side hole and the bottom hole, and a pump placed in the pipe.

23. The device for circulating an aqueous ammonia solution according to claim 22, wherein the side hole is covered with a member for preventing solids in the aqueous ammonia solution reservoir from flowing into the pipe.

24. The device for circulating an aqueous ammonia solution according to any one of claims 20-23, wherein the aqueous ammonia solution reservoir has a bottom provided with a collecting pipe and an opening/closing device capable of opening and closing the collecting pipe.

25. An apparatus for producing ammonium diuranate particles, comprising at least one of the dripping nozzle device as recited

in any one of claims 1-7, the device for recovering a feedstock liquid as recited in claim 8 or 9, the device for supplying a feedstock liquid as recited in any one of claims 10-13, the device for solidifying the surfaces of drops as recited in any one of claims 14-19, and the device for circulating an aqueous ammonia solution as recited in any one of claims 20-24.